



REPLACEMENT SHEET

1 / 11

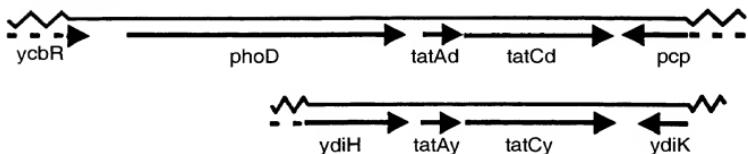
TatA (Eco)	M- GGISIWQLLIIAVIVVLLFGTKKLG-----	26	
TatE (Eco)	M- GEISITKLLVVAALLVLLFGTKKL-----	26	
TatAy (Bsu)	M-PIPGPSLAVIAIVALIIFGPBKLP-----	25	
TatAd (Bsu)	MFSNIIGIPGLLIFVIALLIIFGPBKLP-----	27	
TatAc (Bsu)	M-ELSFTKILVILFVGFLVFGPDKLP-----	25	
TatB (Eco)	M-DIGFSELLLVFIIGLVLGQRLPVAVKTVAGWIRALRSLATTQNELTQELKLQ-----	49	
* * * * *			
TatA (Eco)	-----SIGSDLGASIKGFKKAMSDD-----PKQDKTSQDADFTAKTI	64	
TatE (Eco)	-----TLGGDLGAAIKGFKKAMNDDD-----A-AAKKGADVDLQAEKL	63	
TatAy (Bsu)	-----ELGKAAGDTLREFKNATKGLT-----SDEEEKKKDQ-----	57	
TatAd (Bsu)	-----EIGRAAKRTLLEFKSATKSLV-----SGDEKEKSAELTAVK-----	64	
TatAc (Bsu)	-----ALGRAAGKALSEFKQATSGLT-----QDIRKNDSEN-----K-----	57	
TatB (Eco)	EFQDSLKKVEKASLTNLTPELKASMDDELRQAAESMRKRSVANDPEKADEAHTHNP-----	114	
* * * * *			
TatA (Eco)	ADKQADTNQE-----QARTEDAKRHDKEQV	89	
TatE (Eco)	SHKE-----	67	
TatAy (Bsu)	-----	57	
TatAd (Bsu)	-----	70	
TatAc (Bsu)	-----	EDKQM-----	62
TatB (Eco)	VVKDNEAAHEGVTPAAAQTQASSPEQKPETTPEPVVKPAADAEPKTAAPSPSSSDKP-----	171	

FIG. 1A

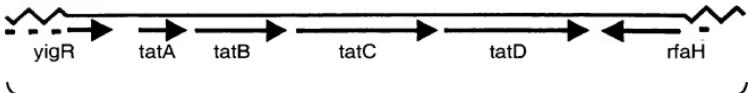
TatC (Eco)	MSVEDDTQ--PLITHLIELRKRRLNCLIIAVIVIFLCLVYFANDIYH-LVSAPLIK	51
TatCy (Bsu)	MTRMKVNQMSLLEHIAELRKRLLIVALAFVVFIIAGFFLAKPIIVYLQETDEAK	50
TatCd (Bsu)	MDKKETH---LIGHLEELRKRRIIVTIAAFFLFLITAFLFVODIYDWLIRDLDGK	51
* * * * *		
TatC (Eco)	QLPQGSTMIAVDVASPFPTB I IKLTFMVSLLSAPVILYQVWAFIAPALYKHERR	105
TatCy (Bsu)	QL---TLNAFNLT D PLYVFMQFAFIIGIVLTSVPVILYQLWAFVSPGLYEKERK	104
TatCd (Bsu)	-----LAVLGPSELWVYMMGLSGICAIASIPVAYQLWRFVAPALTKTTERK	98
* * * * *		
TatC (Eco)	LVVPLLV--SSSLI F YIGMAFAYFVVFPLAFGFLANTAPE-GVQVSTH IASYL	155
TatCy (Bsu)	VTLSYI---PVSILL F LAGLSYYLIPFPVVDFMKRISQDLMNVNQVIGINEYF	155
TatCd (Bsu)	VTIMYIMYIP G LF A LAGISFGYFVFLP V IVLSFLTHLSSG-HFETMFTADRYF	151
* * * * *		
TatC (Eco)	SFVMAFLMAFGVSFEPVVAIVLLCWMGITSPEDLRKKRPYVLVGAFVVGMLTP	209
TatCy (Bsu)	HFLLQLTIPFGLLFQMPVILMFL T RLGIVTPMFLAKIR Y YFTLLVIAALITP	209
TatCd (Bsu)	RFMVNLNSLPFGFLFEMPLVVMFL T RLGILNPYR A RAK L KSYFLLIVVSILITP	205
* * * * *		
TatC (Eco)	PDFVFSQ T LLAIPMYCLFEIGVFFS R E-YV G KGGRNREEENDAEAESEKTEE	258
TatCy (Bsu)	PELLS S MMVTVPLL V YIISILISKA Y RKAQKSSAADRVSSG-----Q	254
TatCd (Bsu)	PDFI S FLVMP L LLVIFEVSV T LSAFVYK K RMRE-----ETAAA-----A	245
* * * * *		

FIG. 1B

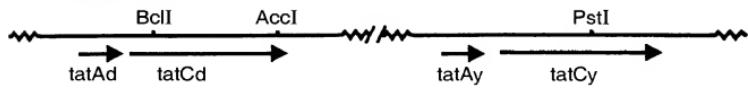
A B. subtilis



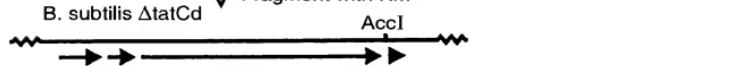
B E. coli

**FIG. 2**

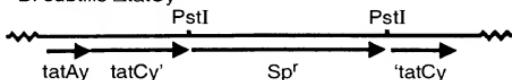
A B. subtilis 168



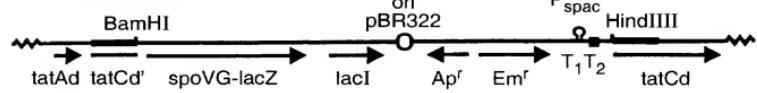
Replacement *BclI-AccI*
Fragment with *Km^r*



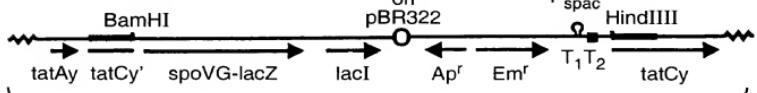
Insertion *Sp^r* in *PstI* Site

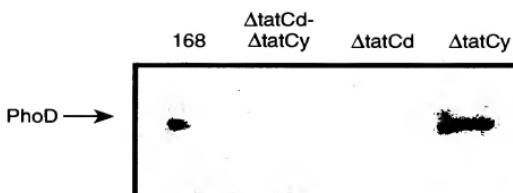
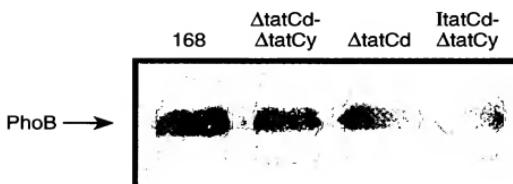
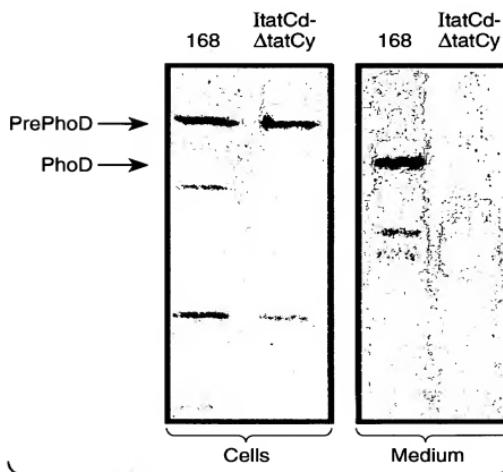


B B. subtilis ItatCd



C B. subtilis ItatCy

**FIG. 3**

**FIG. 4A****FIG. 4B****FIG. 4C**

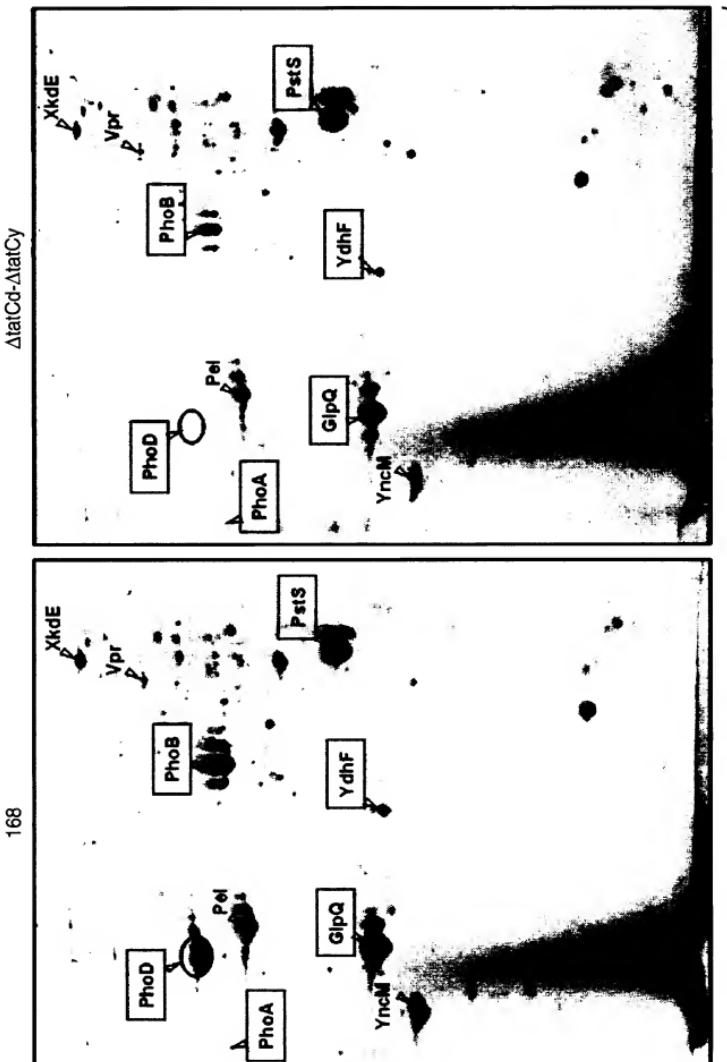
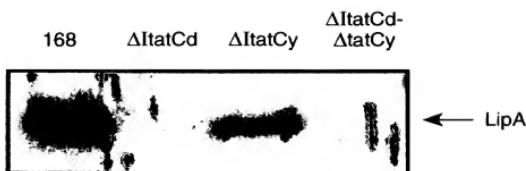
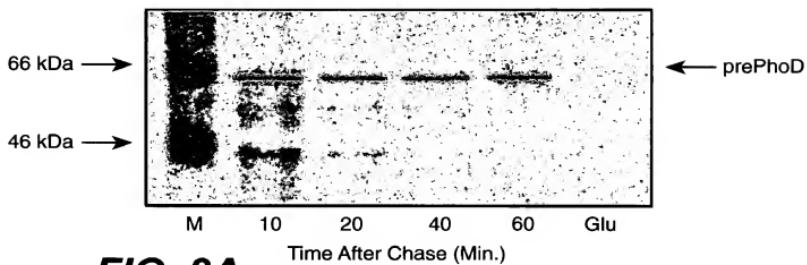
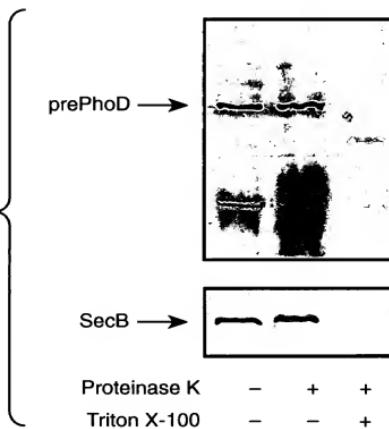


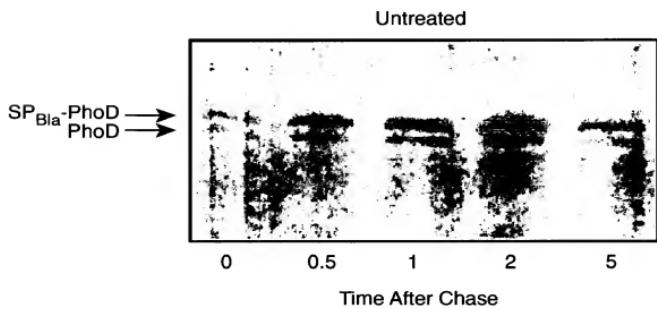
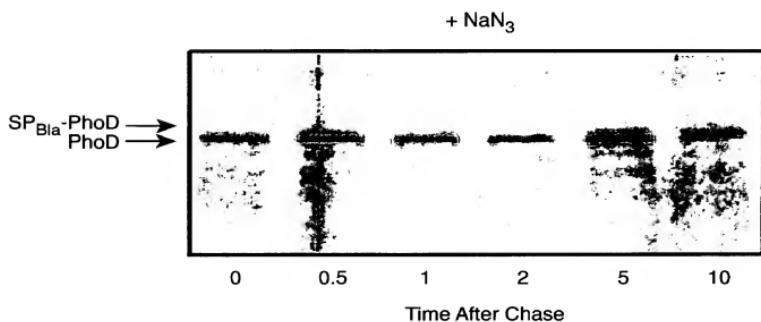
FIG. 5

**FIG. 6**

Protein	N	h	RR-Motif	H	h	C
AlbB	1	0.1	RRILL	27	2.0	AIA
AmyX TM	9	-0.8	RRSFE	15	1.1	-
AppB TM	8	0.5	RRTLM	19	2.3	-
LipA	7	-1.1	RRIIA	19	1.2	AKA
OppB TM	8	-0.6	RRLVY	24	2.0	-
PbpX	2	-2.2	RRRKL	14	2.9	WNA
PhoD	3	-1.3	RRKFI	17	0.9	VGA
QcrA TM	1	-1.1	RRQFL	19	1.3	-
TlpA TM	1	-0.8	RRLII	21	2.4	-
WapA ^W	1	-3.0	RRNFK	18	2.3	VLA
WprA	8	-1.7	RRKFS	20	1.9	AAA
YceA TM	1	-0.4	RRAFL	21	2.2	-
YesM TM	1	-1.5	RRMKI	20	2.4	QYA
YesW	1	-1.3	RRSCL	19	2.0	VKA
YfkN TM	1	-1.2	RRTHV	17	1.7	IHA
YkpC	8	-1.0	RRVAI	17	2.3	SLA
YkuE	1	-1.3	RRQFL	17	1.0	GYA
YmaC	7	0.0	RRFLL	15	2.4	YSL
YubF TM	9	-2.7	RRNTV	23	2.0	-
YuiC	8	0.2	RRLLM	20	1.9	IEA
YvhJ TM	2	-1.7	RRKIL	18	2.5	-
YwbN	1	-1.8	RRDIL	23	1.4	QTA

FIG. 7

**FIG. 8A****FIG. 8B**

**FIG. 9A****FIG. 9B****FIG. 9C**

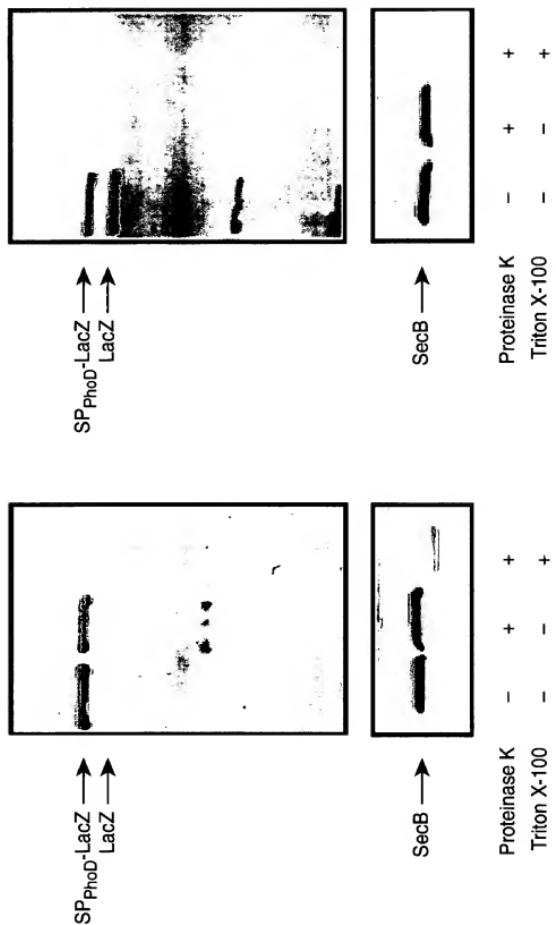


FIG. 10A

FIG. 10B

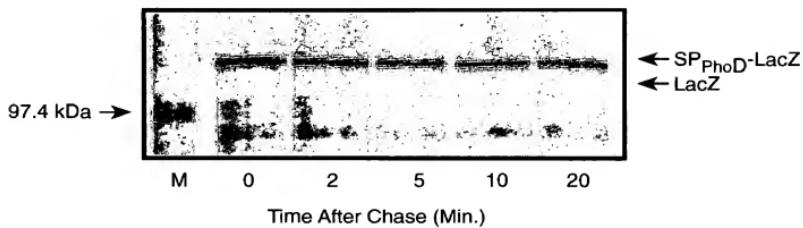


FIG. 11A

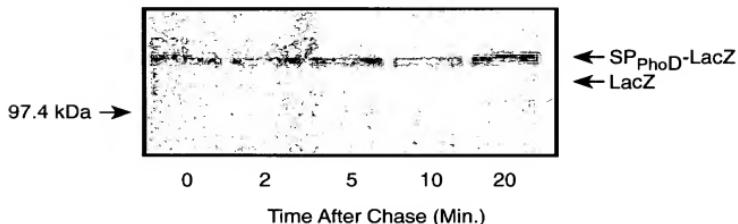
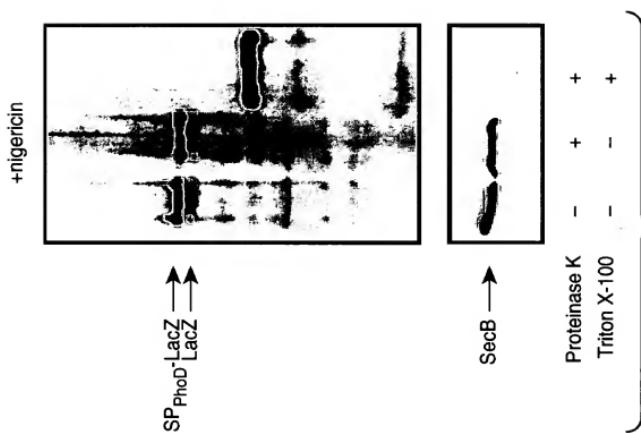
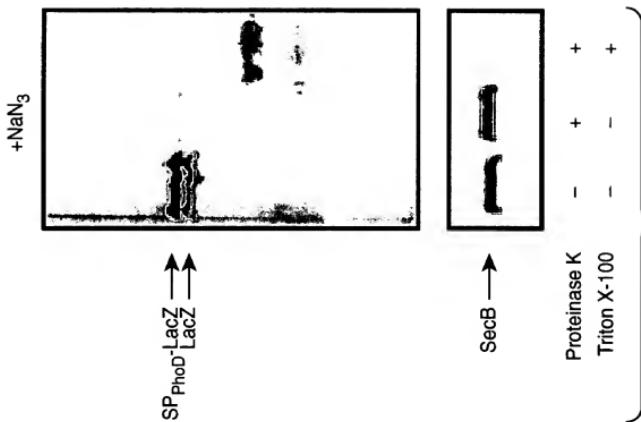
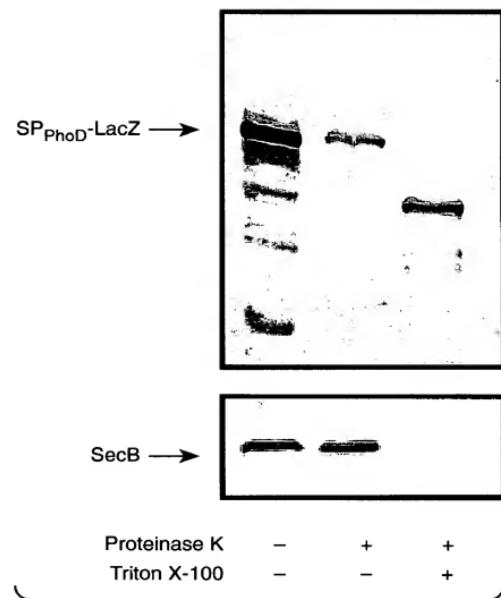


FIG. 11B



**FIG. 13**Homologs in *B. alcalophilus*

TatA

MGGLSVGSVVLIALVALLIFGPKKLPELGKAAGSTLREFKNATK
 GLADDDDDTKSTNVQKEKA

TatC

MTMMTPNQQTSKKKKRKGRKGRVPMQDMSIMDHAEELRRRIF
 VVLAFFIVALIGGFFLA VPVITFLQNSPQAADMPFNAFRLTDPLRV
 YMNFIAVITALVLIIPVILYQLWAFVSPGLKENEQKATLAYIPIAFL
 LFLAGIAFSYFILLPFPVISFMQKADMRLLEINEMYGINEYFSFLFQL
 TIPFGLLFLQLPVVVMFLTRLGVVTPFLRKIRKYAYFALLVIAGII
 TPPELTSHLFVTVPMILILYEISITISAITYRKYHGTTDHNGQESAK

FIG. 14